Name of the work: 1. Improvements to Roads and Drains From Hegdenagar petrol bunk to [illegible] park in Ward No. 06 2. Improvements to Roads and Drains in Hegdenagar and surrounding areas in Ward No. 06 3. Improvements to Roads and Drains in Bhuvaneshwarappa Layout Nagawara in Ward No. 06 4. Drilling of Borewells and Maintance in Ward No.06

Contractor/Agency : HONNAPPA MURTHY.

Name of the Client : Executive Engineer, Yalahanka Project Division BBMP, Bangalore.

Estimated Cost : Rs 220 Lakhs

Status of Bill : 1st and final bill

In the Presence of : (a) Mr. Anjaneyalu B.R
Assistant Engineer, BBMP, Bangalore.
: (b) Mr. K.R Chidananda
Assistant Executive Engineer, BBMP, Bangalore
: (c) Mr. Somesh, Site Engineer
M/s Tejus Consultants

BOQ S.L No	Description of Item of Work	Comments/observation
1	Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neatly dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
2	Removing and refixing stone slabs of drains and pointing in CM (1:3) As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
3	Providing granite Slabs of Selected quality roughly dressed and fixed in cement mortor (1:6) including fixing curing etc,. Complete. 7.5cms thick As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

4	Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications.	Work done up to the billed quantity and quality is satisfactory
5	Providing and Constructing precast concrete solid blocks with compressive strength not less than 3.5 Newton/sqm with cement mortor 1:4 masonry (quoin, jamb, closer blocks) with solid concrete blocks of size 40X15X20 cms confirming to I.S:2185/1965 in superstructure including cost of materials, labor charges, scaffolding, curing complete as per specifications	Work done up to the billed quantity and quality is satisfactory
6	Providing and constructing granite size stone masonry in foundation cement mortor 1:6, stone hammered dressed in courses not less than 20cms high, bond stones at 2m. apart in each course including cost of materaials, labour, curing complete as per specifications.	Work done up to the billed quantity and quality is satisfactory
7	Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar 1:3, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications.	Work done up to the billed quantity and quality is satisfactory
8	Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.878 cum and fine aggregates @ 0.459 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation and plinth, including cost of all materials, labour, HOM of machinery, curing complete as per specifications.	Work done up to the billed quantity and quality is satisfactory
9	Providing granite Slabs of Selected quality roughly dressed and fixed in cement mortor (1:6) including fixing curing etc,. Complete. 10cms thick	Work done up to the billed quantity and quality is satisfactory
10	Providing chamfering edges to stone slab 2.5 cms. wide as per specifications. (only chamfered length shall be recorded)	Work done up to the billed quantity and quality is satisfactory

11	Cement concrete pavement.Construction of un-reinforced plain cement concrete pavement, thickness as per design, over a prepared sub base with OPC cement or any other type as per clause 1051.2.2 design mix M20/M30 , with 25mm and down size graded granite metal coarse aggregates and fine aggregtes , with superplastisiser @3lts confirming to IS9103-1999 Reaffirmed-2008 , mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the form work as per drawing). Spreading the concrete with shovels, rackers compacted using needle, screed and plate vibrator and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints including groove cutting charges, joint filler, separation membrane, selant primer, joint sealant, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications. - M30 (at 360Kg per cum coarse aggregate @ 0.69cum and fine aggregate @ 0.46cum)	Work done up to the billed quantity and quality is satisfactory
12	Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift.	Work done up to the billed quantity and quality is satisfactory
13	Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
14	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub-base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
15	Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kglsqm using mechanical means complete as per specifications. As per As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

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16	Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
17	Providing and laying dense bituminous macadam 50-75mm compacted thickness with 4.5% VG-30 Bitumen using 40/60 TPH capacity H.M.P, using crushed aggregates of grading II, premixed with VG 30 grade bituminous binder and transporting the hot mix to work site, laying with mechanical paver to the required grade level and alignment rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH table 500-10, complete in all respects complete as per specification As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
18	Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
19	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
20	Removing and resetting of footpath slab As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
21	Providing and fixing RCC Precast cover slab of 100mm thick for drain in cement concrete M20 using graded granite jelly 20mm and down size with steel reinforcement, including form work, lift charges, curing and concrete finished surfaces on both sides etc, complete and as per drawing and the directions of Engineer in-charge. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
22	Removing and resetting of kerb stones As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

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23	Providing and fixing pre cast solid cement concrete kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165 mm respectively, 400mm high and 450mm in length finished with CM 1:3 plastering and finishing cutting including formwork, curing, including cost of materials, labour charges of machinery, loading and unloading, lead and lift, transportation ete.,complete. As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
24	Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications.As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
25	Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatement including cost of all materials, labour, HOM of machineries complete as per specifications.As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
	Bore well	
26	Geophysical investigation of site for sinking Borewell for supplying drinking water to the habitation either through the Hand pump, MWS of P.W.S.S by vertical electrical sounding by adopting Venner or Schlumberger's method, including reconnaissance survey of geological formation, Gerophysical investigation of existing Ground Wate in the vicinity, its qualityf 1.0 meter in consolidated formation for proper seating of casing pipe, depth of drilling required to cover full depth of aquifer proposed to be tapped, probable yield and other information required including transportation of instrument and accessories to work site., engaging techinical personal and labour required etc., as per Specification and direction As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
27	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) 0 to 50 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

28	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) 50 to 1000 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
29	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) 100 to 150 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
30	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,)150 to 200 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
31	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) 200 to 250 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
32	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) 250 to 300 m As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

33	Supply of ISI mark 175 mm nominal bore, Plain end steel casing pipe - grade of Steel Fee 410 of wall thickness 5.4mm thick confirming to IS 4270:2001 and latest amendments, electric resistance welded steel tube material and confirming to IS 1387/1993 and manufactured by baseic open hearth electric or basic oxygen process in random length of 5 to 7 mts both ends threaded confirming tio IS 554/1985, one end fixied with socket confirming to IS 4270:2001 and the other end with screwed pipes ISI Marking weighing 25.10Kg/mtr (Inclusive of all taxes and durties) Prices include Collar-medium duty	Work done up to the billed quantity and quality is satisfactory
34	Providing 250mm dia PVC Pipe 6kg/cm As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
35	Providing and fixing 160mm Borewell Cap As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
36	Providing MS Casing pipe collars As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
37	Supply and delivery at site brand New texmo/ innoval/ Lubi/ Sabar / Atalanta/ Calamal/ make suitable for vertical installation in 150mm dia bore well comprising of single stage or multistage CF pump close coupled by measns of stainless steel coupling to suitable HP suitable speed totally enclosed and filled with pure drinking water (Wet type) squirrel cage submersible induction motor suitable for opertation of 3PH., 50 Hz, 380/440 volts AC supply fitted with required aqccessories such as suction, casing suction strainers sand guard Non return value etc. complete . The pump and motor shall form an integral unit with all the required fittings 12.50 HP 25 stage. ATALANTA< SUGNA< CRI, KIRLOSKAR and other Equivalent Pumps 17.5 HP 30 Stage As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory
38	Supplying of ISI marked galvanized mild steel tube (continously welded electric resistance welded (ERW) high frequency, induction welded (HFIW) Hot finished welded type of nominal bore given below screwed at both ends as per IS 554/1986 with latest amendments, pipes threaftes at one end and the other end protected asper specification in random lengths of 4 to 7 mtrs Confirming to IS 1239 part I/1990 with amendament 1-5 and with all its latest amendements if any. The pipes supplied should be with BIS mark No 3/08-09 2406/15.10.2008 As per the direction of Engineer incharge	Work done up to the billed quantity and quality is satisfactory

39	Supplying and drawing 3 core flat PVC sheathed submersible pump cable manufactured with electrolytic grade copper with flexible copper with low resistance conductor confirming to table 3 class 5 of IS:8130-1984 and virgin grade PVC insulation and powder coating extruded PVC sheathed suitable for working voltage upto 1100Volts as per IS-694:1990 & confirming to GTP of GROUP-A. As per the direction of Engineer incharge	TEJUS CONSULTANTS Work done up to the billed quantity and quality is satisfactory
40	Labour charges for erection of new/ repaired submersible pumpset along with gi pipes inculding transportion each length pno 558 ino 3	Work done up to the billed quantity and quality is satisfactory
41	Supplying and flush polished wood board with out front frount plank made of not less than 15mm thick plank after due groove cutting Finishing with necessary on fixing the same to the wall using tapered inverted wooden plugs screws etc.,	Work done up to the billed quantity and quality is satisfactory
42	Supplying of 1.1 KV LT UG cable having aluminium condutor PVC insulated shethed, EXTREDED INNER SHEATHRD galvnised steel,stirp confirming IS 3975;1990 AND extruded PVC outer sheathing armoured cable IS 1554 part 1;1998 and confirming to GTP of group.	Work done up to the billed quantity and quality is satisfactory
43	Labour charges for laying of 1.1 K.V class UG cable,	Work done up to the billed quantity and quality is satisfactory
44	Digging or trenching of 0.6m deep x 0.5 mtr wide refilling the trench to the required ground level and consolidating etc.,	Work done up to the billed quantity and quality is satisfactory
45	Supplying and fixing of Class A (meaium duty) GI pipe of wall thickness not less than 3.25mm on pole/wall/drain crossing with necessary clamping arrangements for UG cable of 1.1 KV class	Work done up to the billed quantity and quality is satisfactory
46	Supplying and fixing L.T. cast Iron pot head suitable for 1.1 KV class UG cable filled with necessary bituumen/insulating compound complete with terminals, clamps, bolts, nuts and washers etc.,	Work done up to the billed quantity and quality is satisfactory
47	Supplying, fixing, wiring, earth electrode for grounding conduits, I.C cutouts and other equipments on the meter board using 40 mm dia 2.90 mm thick GI pipe 2.5 m long buried in a pit. The pit should be filled with equal propotion of solt and charocoal 150 mm alround the pipe to complete depth. The connection from the pipe to the conduit etc., is to be established through GI wire of size, as per ISI specification 7.3.3 IS 732 using 12 mm dia bolts, nuts, washers and check nuts, etc., the pipe shall have 16 throught holes of 122 mm dia,	Work done up to the billed quantity and quality is satisfactory
48	Supplying and fixing of Porcelain fuse channel with cut out on existing wooden / panel using necessary nuts, bolts and washer etc., complete....	Work done up to the billed quantity and quality is satisfactory
49	Supplying and fixing of heavy duty glands for ug cable 1.1 kv etc., complete....	Work done up to the billed quantity and quality is satisfactory

50	Supplying and fixing of heavy duty glands for ug cable 1.1 kv etc., complete....	Work done up to the billed quantity and quality is satisfactory
51	Supplying and fixing miniature circuit breakers/solaters on existing MCB distribution boards using necessary fixing materiasl wiring complete as requireds 5 to 32 amps triple pole with all lead and lift, loading, unloading and labour charges etc complete as per specifications	Work done up to the billed quantity and quality is satisfactory
52	Fabrication supplying and mounting MS box of 16 SWG suitable for floor /wall mounting, fully weather proof with provision for better heat dissipation, provided with hinged front cover, equipped with tamper proof locking arrangements, with suitable size clamps with necessary cable entry pipe with gland and box should be finished 2 coats of red oxide primer paint and finally finished with approved colour enamelled metal paint etc., complete box of 21600 sqcm	Work done up to the billed quantity and quality is satisfactory
53	Providing and fixing in position 50mm nominal bore gun metal non-return valve horizontal type of approved make including cost of all materials, labour and HOM of equipments with all leads complete as per specifications	Work done up to the billed quantity and quality is satisfactory
54	Providing NP/CP waste unions conforming to ISI specifications and fixing them in position as per directions including cost of materials, fixtures and conveyance to work spot etc., complete.	Work done up to the billed quantity and quality is satisfactory
55	Gate value 50 mm nominal bore gun metal	Work done up to the billed quantity and quality is satisfactory
56	NIPPLE 50 mm nominal bore gun metal	Work done up to the billed quantity and quality is satisfactory
57	S BEND 50 mm nominal bore gun metal	Work done up to the billed quantity and quality is satisfactory
58	TEE 50 mm nominal bore gun metal	Work done up to the billed quantity and quality is satisfactory
59	Supplying and delivery at site brand new star / Essen/ Lotus/Sun-shines/Adarsh/ GK Controls best indigenous make combined energy meter - cum- control panel board unit of size 600x450 x200 mm minimum mechanically strong vermin and water proof. The unit shall have two detachable doors suitable for operation on 3 ph, 50Hz, 380/440 volts, A.C supply with spring loaded latch, locking device with a key ribs should be provided inside the door, canopy apron and louvers ventilators shall be provided. the combined energy meter cum- control panel board unit suitable for operation. The panel board shall be fabricated on single unit in the above components for suitable pumpset.	Work done up to the billed quantity and quality is satisfactory

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